This Class 540 is considered to be an integral part of Class 260 (see the Class 260 schedule for the position of this Class in schedule hierarchy). This Class retains all pertinent definitions and class lines of Class 260.

ORGANIC COMPOUNDS (CLASS 532, SUBCLASS 1)

1 .HETEROCYCLIC CARBON COMPOUNDS CONTAINING A HETERO RING HAVING CHALCOGEN (I.E., OXYGEN, SULFUR, SELENIUM OR TELLURIUM) OR NITROGEN AS THE ONLY RING HETERO ATOMS

2 ..Cyclopentanohydrophenanthrene ring system containing

3 ...Heavy metal or aluminum containing

4 ...Boron or silicon containing

5 ...Phosphorus attached directly or indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

6 ...Spiro

7 ....Plural spiro atoms

8 .....The cyclopentanohydrophenanthrene ring system is part of a polycyclo ring system having at least five cyclos

9 ......Nitrogen containing hetero ring as one of the cyclos of the polycyclo ring system

10 .....The cyclopentanohydrophenanthrene ring system shares spiro atoms with two hetero rings, each of which contains two oxygens (e.g., 3,17-bis-ketals, etc.)

11 .....The cyclopentanohydrophenanthrene ring system shares a spiro atom with a lactone ring (i.e., -C(=X)-O- is part of the ring, wherein X is chalcogen)

12 .....Plural oxygens in both rings which share a spiro atom (e.g., 17,20;20,21 bismethylenedioxy-pregnanes, etc.)

13 ......Nitrogen, sulfur, cyano or -C(=X)-, wherein X is chalcogen, bonded directly to the cyclopentanohydrophenanthrene ring system

14 ......Halogen attached directly or indirectly to the cyclopentanohydrophenanthrene ring system by acyclic nonionic bonding

15 ....The cyclopentanohydrophenanthrene ring system is part of a polycyclo ring system having at least five cyclos

16 .....Hetero ring is one of the cyclos of the polycyclo ring system

17 ......The hetero ring is five-membered, consisting of one oxygen and four carbons, and shares the spiro atom with a six-membered oxygen containing hetero ring (e.g., sapogenins, etc.)

18 ....Purification or recovery

19 ....Chalcogen bonded directly at the 12-position of the cyclopentanohydrophenanthrene ring system (e.g., hecogenin, etc.)

20 ....Chalcogen bonded directly at the 11-position of the cyclopentanohydrophenanthrene ring system

21 ....Chalcogen bonded directly at the 7-position of the cyclopentanohydrophenanthrene ring system

22 ....Halogen, cyano, nitrogen or sulfur bonded directly to the cyclopentanohydrophenanthrene ring system

23 ......The spiro atom is the 17-position carbon of the cyclopentanohydrophenanthrene ring system

24 ......The hetero ring shares the 11,12,13-positions of the cyclopentanohydrophenanthrene ring system (i.e., bridged; e.g., 11,18-oxido steroids, etc.)
25 ......The hetero ring is three-membered consisting of one oxygen and two carbons (e.g., oxirane, etc.)
26 ....The hetero ring shares the 5,6-positions of the cyclopentanohydrophenanthrene ring system
27 ......The hetero ring contains two chalcogens which are bonded directly at the 16 and 17-positions of the cyclopentanohydrophenanthrene ring system
28 ....The spiro includes the cyclopentanohydrophenanthrene ring system and a hetero ring
29 .....Nitrogen in the spiro hetero ring
30 .....Sulfur in the spiro hetero ring
31 .....Plural oxygens in the spiro hetero ring
32 ......The A ring is a benzene ring
33 ......Chalcogen bonded directly to the spiro hetero ring
34 ......The spiro hetero ring shares the 3-position carbon of the cyclopentanohydrophenanthrene ring system
35 ....Halogen bonded directly to the cyclopentanohydrophenanthrene ring system
36 ....Nitrogen attached directly or indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding
37 ....Plural cyclic ketal rings containing (e.g., 3,20-bis-ketals, etc.)
38 ....Chalcogen bonded directly at the 11-position of the cyclopentanohydrophenanthrene ring system
39 ....The cyclopentanohydrophenanthrene ring system is fully saturated
40 ....Carbon chain having carbon-to-carbon unsaturation bonded directly at the 17 position of the cyclopentanohydrophenanthrene ring system
41 .....The spiro hetero ring contains -C(=X)-O-, wherein X is chalcogen, as part of the ring (e.g., spiro-lactones, etc.)
42 ......Sulfur bonded directly to the cyclopentanohydrophenanthrene ring system
43 ......Chalcogen bonded directly at the 11-position of the cyclopentanohydrophenanthrene ring system
44 ......Chalcogen, halogen, or nitrogen attached indirectly to the cyclopentanohydrophenanthrene ring system by acyclic nonionic bonding
45 .....The spiro hetero ring is four-membered consisting of one oxygen and three carbons
46 .....The spiro hetero ring is three-membered consisting of one oxygen and two carbons (e.g., oxirane, etc.)
47 ...The cyclopentanohydrophenanthrene ring system is part of a polycyclo ring system having at least five cyclos
48 ....Hetero ring is one of the cyclos of the polycyclo ring system
49 .....The hetero ring contains nitrogen
50 ......Plural nitrogens in the hetero ring
51 ....The hetero ring is five-membered
52 ....The hetero ring consists of two nitrogens and three carbons and is ortho fused to the A ring

53 .....Having -C(=X)-, wherein X is chalcogen, bonded directly at the 17-position of the cyclopentanohydrophenanthrene ring system
54 .....The hetero ring consists of two nitrogens and three carbons and is ortho fused to the D ring
55 .....Chalcogen in the hetero ring
56 .....The hetero ring is five-membered
57 .....The hetero ring is ortho-fused to the A ring
58 .....The hetero ring is five-membered
59 .....The hetero ring contains sulfur
60 .....The hetero ring is a cyclic anhydride (i.e., containing -C(=X)-O-C(=Y)- as part of the ring, wherein X and Y are chalcogen; e.g., 5,8-maleic anhydride adduct of 5,7,9(11)-pregnatrien-3,20-di-one, etc.)
61 .....The hetero ring contains plural oxygens
62 .....Two of the cyclos share at least three ring members or a ring carbon is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)
63 .....The hetero ring is ortho-fused to the D ring
64 .....At least six cyclos in the polycyclo ring system
65 .....Nitrogen or acyclic chalcogen bonded directly to the hetero ring (e.g., cyclic carbonates, etc.)
66 .....The A ring is a benzene ring
67 .....Sulfur or nitrogen attached directly or indirectly to the cyclopentanohydrophenanthrene ring system by acyclic nonionic bonding
68 .....Halogen attached indirectly to the cyclopentanohydrophenanthrene ring system by acyclic nonionic bonding
69 .....Halogen bonded directly to the cyclopentanohydrophenanthrene ring system
70 .....Oxygen bonded directly at the 11-position of the cyclopentanohydrophenanthrene ring system
71 .....Oxygen attached directly to the B ring or indirectly to the A or B ring by acyclic nonionic bonding
72 .....The hetero ring is a lactone (i.e., containing -C(=X)-O- as part of the ring, wherein X is chalcogen)
73 .....The lactone ring shares at least three ring members with one other cyclo of the polycylo ring system (i.e., bridged)
74 .....The lactone ring shares the 11,12,13-positions of the cyclopentanohydrophenanthrene ring system (e.g., 11, 18-lactones, etc.)
75 .....The lactone ring shares a ring carbon with two other cyclos of the polycyclo ring system (e.g., peri-fused, etc.)
76 .....The hetero ring is three-membered consisting of one oxygen and two carbons (e.g., oxirane, etc.)
77 .....The polycyclo ring system contains plural oxirane rings
78 .....The hetero ring shares the 1,2-positions of the cyclopentanohydrophenanthrene ring system
79 .....The hetero ring shares the 4,5-positions of the cyclopentanohydrophenanthrene ring system
80 .....The hetero ring shares the 5,6-positions of the cyclopentanohydrophenanthrene ring system
81 .....The hetero ring shares the 6,7-positions of the cyclopentanohydrophenanthrene ring system

82 ......The hetero ring shares the 11,12-positions of the cyclopentanohydrophenanthrene ring system

83 ......The hetero ring shares the 14,15-positions of the cyclopentanohydrophenanthrene ring system

84 ......The hetero ring shares the 16,17-positions of the cyclopentanohydrophenanthrene ring system

85 ....Halogen bonded directly to the cyclopentanohydrophenanthrene ring system

86 ....Saturated A ring

87 ......The hetero ring shares the 9,11-positions of the cyclopentanohydrophenanthrene ring system

88 ....Halogen bonded directly to the cyclopentanohydrophenanthrene ring system

89 ....Having -C(=X)-, wherein X is chalcogen, bonded directly to the cyclopentanohydrophenanthrene ring system

90 .....The hetero ring shares at least three ring members with one other cyclo of the polycyclo ring system (i.e., bridged)

91 ......Bridge consisting of oxygen and carbon between the 6- and 10-positions of the cyclopentanohydrophenanthrene ring system (e.g., 6,19-oxido steroids, etc.)

92 ......Bridge consisting of oxygen and carbon between the 11- and 13-positions of the cyclopentanohydrophenanthrene ring system (e.g., 11,18-oxido steroids, etc.)

93 .....The hetero ring shares a ring carbon with two other cyclos of the polycyclo ring system (e.g., peri-fused, etc.)

94 ...Hetero ring attached directly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

95 ....The hetero ring contains nitrogen

96 .....Plural nitrogen containing hetero rings bonded directly to the cyclopentanohydrophenanthrene ring system

97 .....The hetero ring is bonded directly at the 3-position of the cyclopentanohydrophenanthrene ring system

98 ......The A ring is a benzene ring

99 ......Halogen bonded directly to the cyclopentanohydrophenanthrene ring system

100 ....The hetero ring contains plural chalcogens

101 .....The hetero ring and acyclic chalcogen are both bonded directly at the 17 position of the cyclopentanohydrophenanthrene ring system

102 ....The hetero ring contains -C(=X)-O-, wherein X is chalcogen, as part of the ring (e.g., lactones, etc.)

103 .....Additional chalcogen, cyano, or -C(=X)-, wherein X is chalcogen, bonded directly to the hetero ring

104 .....Nitrogen or sulfur attached directly or indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

105 .....Chalcogen bonded directly at the 14-position of the cyclopentanohydrophenanthrene ring system or double bond in the D ring (e.g., cardenolides, etc.)

106 ...Nitrogen attached directly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

107 ...Nitrogen containing hetero ring attached indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

108 ....The hetero ring is five-membered and has plural hetero atoms

109 ....The hetero ring is in the 17-position substituent of the cyclopentanohydrophenanthrene ring system

110 .....The hetero ring is bonded directly to a -C(=X)- group, wherein X is chalcogen

111 .....Having -C(=X)-, wherein X is chalcogen, bonded directly at the 17-position of the cyclopentanohydrophenanthrene ring system

112 .....Chalcogen or nitrogen in chain between the hetero ring and the cyclopentanohydrophenanthrene ring system

113 ....Chalcogen in chain between the hetero ring and the cyclopentanohydrophenanthrene ring system

114 ...Oxygen containing hetero ring attached indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

115 ....The hetero ring contains -C(=X)-O-, wherein X is chalcogen, as part of the ring (e.g., lactones, etc.)

116 ....Additional hetero atom in the oxygen containing hetero ring

117 ....The A ring is a benzene ring

118 ....The hetero ring is bonded directly to chalcogen which is bonded directly to the cyclopentanohydrophenanthrene ring system

119 .....The chalcogen is bonded directly at the 17-position of the cyclopentanohydrophenanthrene ring system

120 ...Chalcogen attached indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

121 ..Azaporphyrins

122 ...Phthalocyanines

123 ....Hetero ring attached directly or indirectly to the phthalocyanine ring system by nonionic bonding

124 .....The hetero ring is six-membered having nitrogen as a ring member

125 ......Plural hetero atoms in the six-membered hetero ring

126 ....Triazines (including hydrogenated)

127 .....The hetero ring is five-membered having plural hetero atoms, at least one of which is nitrogen

128 ....Boron, germanium, phosphorus or silicon containing

129 ....Having -C(=X)-, wherein X is chalcogen, bonded directly to ring carbon of the phthalocyanine ring system (e.g., tetracarboxy copper phthalocyanine, etc.)

130 ....Having -C(=X)-, wherein X is chalcogen, attached indirectly to ring carbon of the phthalocyanine ring system by nonionic bonding (e.g., phthalocyanine acetic acids, etc.)

131 ....Sulfonyl bonded directly to ring carbon of the phthalocyanine ring system

132 .....Chalcogen bonded directly to the sulfonyl group

133 .....Nitrogen bonded directly to the sulfonyl group

134 ......Additional nitrogen in the sulfonyl containing substituent

135 ....Nitrogen attached indirectly to ring carbon of the phthalocyanine ring system by acyclic nonionic bonding

136 ....Halogen bonded directly to ring carbon of the phthalocyanine ring system

137 .....At least eight halogens bonded directly to ring carbons of the phthalocyanine ring system
138 .....Processes of halogenating the phthalocyanine ring system
139 ....Metal containing
140 .....Heavy metal or aluminum containing
141 ......Specified crystalline form or processes of milling (e.g., alpha crystalline form, ball milling, acid milling, etc.)
142 ......Processes of forming the phthalocyanine ring system
143 ....From reactant which contains plural cyano groups (e.g., preparing from phthalonitrile, etc.)
144 ....From reactant which contains plural carbonyl groups (e.g., preparing from phthalic anhydride, etc.)
145 ..Porphyrins (including hydrogenated; e.g., chlorophyll, etc.)
200 ..Hetero ring is four-membered containing nitrogen and having chalcogen double bonded directly to a ring carbon which is adjacent to the ring nitrogen
201 ...Heavy metal containing
202 ...Plural hetero atoms in the hetero ring
203 ...Polycyclo ring system containing the hetero ring as one of the cyclos
204 ....The ring nitrogen is shared by a ring containing at least seven members
205 ....The ring nitrogen is shared by a six-membered ring
214 .....The six-membered ring contains sulfur
215 ......1-thia-5-aza-bicyclo(4.2.0)octane (including unsaturated; e.g., cepham, etc.)
216 ....The 1-thia-5-aza-bicyclo(4.2.0)oct-ane is part of a polycyclo ring system having at least three cyclos
217 ....Double bond between the 2,3-positions of the bicyclo ring system (e.g., 2 cephem, etc.)
218 ....Ring expansion to produce the bicyclo ring system
219 ....7-amino cephalosporanic acid per se or salt thereof (i.e., 7-ACA or salt thereof)
220 ....Purification or recovery
221 ....7,7-disubstituted
222 ....Additional hetero ring containing
223 ....2- or 4-position substituent contains hetero ring
224 ....3-position substituent contains a pyridine ring (e.g., quinoline, thienopyridine, lutidines, etc.)
225 ....7-position substituent contains hetero ring
226 ....3-position substituent contains sulfur
227 ....7-position substituent contains hetero ring
228 ....Alkyl, hydroxyalkyl, alkoxyalkyl or alkanoyloxyalkyl bonded directly to 3 position
229 ....Sulfur containing substituent
230 ....Alkyl, hydroxyalkyl, alkoxyalkyl or alkanoyloxyalkyl bonded directly to 3 position
300 .....The six-membered ring contains oxygen
301 ......1-oxa-5-aza-bicyclo(4.2.0)octane (including unsaturated)
302 ....The ring nitrogen is shared by a five-membered ring
303 .....The five-membered ring contains an additional hetero atom
304 ......1-thia-4-aza-bicyclo(3.2.0)hep-tane (including unsaturated; e.g., penam, etc.)
305 ....The 1-thia-4-aza-bicyclo(3.2.0)hep-tane is part of a polycyclo ring system having at least three cyclos

306 .....Plural 1-thia-4-aza-bicyclo(3.2.0)hep-tane ring systems attached directly or indirectly to each other by nonionic bonding
307 .....Spiro
308 .....The 6-position substituent contains phosphorus attached directly or indirectly to the bicyclo ring system by nonionic bonding
309 .....Nitrogen containing hetero ring attached directly at the 3-position of the bicyclo ring system
310 .....Having -C(=X)-, wherein X is chalcogen, bonded directly at the 3-position of the bicyclo ring system
311 .....Nitrogen or hydrogen bonded directly to the -C(=X)- group
312 .....Nitrogen bonded directly at the 6-position of the bicyclo ring system
313 .....The 2-position substituent contains chalcogen, nitrogen or halogen
314 .....Having -C(=X)-, wherein X is chalcogen, single bonded directly to the nitrogen (e.g., penicillin F, etc.)
315 .....Processes utilizing penam containing compound
316 .....Introduction of -C(=X)- group, wherein X is chalcogen, onto nitrogen (e.g., carboxamide formation, etc.)
317 .....Boron, silicon or phosphorus containing reactant
318 .....Esterification of the 3-position -C(=X)X- group, wherein the X's may be the same or diverse chalcogens
319 .....Sulfur-oxidation, epimerization, 6-alkoxylation, de-esterification or reduction
320 .....Formation of solvate or anhydrous forms, or special crystalline forms
321 .....Conversion of amine salts to metal salts
322 .....Purification utilizing solid adsorbent
323 .....Base salt formation of 3-position -COOH group
324 .....Extracting solid from solution
325 .....The nitrogen is part of a hetero ring
326 .....Chalcogen, -C(=X)-, wherein X is chalcogen, or additional nitrogen bonded directly to the -C(=X)- group
327 .....Hetero ring or ring system bonded directly to the -C(=X)- group
328 .....Nitrogen containing ring or ring system attached by carbon or acyclic carbon chain to the -C(=X)- group
329 .....Polycyclo heterocyclic ring system in 6-position substituent
330 .....The polycyclo ring system is attached directly to a -C(=X)-NH- group, wherein X is chalcogen and substitution may be made for hydrogen only, which group is between the polycyclo ring system and the 1-thia-4-aza bicyclo(3.2.0)hep-tane
331 .....Acyclic nitrogen or azide attached indirectly to the -C(=X)- group by acyclic nonionic bonding
332 .....Having -C(=X)-, wherein X is chalcogen, bonded directly to the nitrogen
333 .....Hetero ring bonded directly to the -C(=X)- group
334 .....Chalcogen, additional nitrogen or additional -C(=X)- bonded directly to the -C(=X)- group
335 .....Additional acyclic nitrogen or acyclic chalcogen in the 6-position substituent
336 .....The -C(=X)- group, an unsubstituted benzene ring and -NHH bonded directly to the same carbon atom (e.g., ampicillin, etc.)
337 .....Cycloaliphatic ring in 6-position substituent
338 .....Benzene or hetero ring in 6-position substituent
339 .....The ring is bonded directly to the -C(=X)- group

340 ....Having -C(=X)X-, wherein the X's may be the same or diverse chalcogens, in chain between the ring and the -C(=X)- group
341 ....Chalcogen in the chain between the ring and the -C(=X)- group
342 ....Unsubstituted hydrocarbyl chain between the ring and the -C(=X)- group
343 ....Amine addition salts of 3-position -COOH group
344 ....Nitrogen containing hetero ring in the cation (i.e., amine moiety)
345 ....Plural nitrogens in the cation (i.e., amine moiety)
346 ....Processes
347 ......Bicyclo ring system which is 1-oxa-4-aza-bicyclo(3.2.0)hep-tane (including unsaturated)
348 ....Acyclic carbon double bonded directly at the 2-position of the bicyclo ring system
349 ....Chalcogen attached directly by a single bond to the carbon or to an acyclic carbon chain which contains the carbon
350 .....The ring system is 4-aza-bicyclo(3.2.0)heptane (including unsaturated) and has sulfur bonded directly at the 2-position
351 ......Thienamycin per se or salt thereof
352 ....Five-membered hetero ring consisting of one nitrogen, one sulfur and three carbons as one of the cyclos of the polycyclo ring system
353 .....Double bond between ring members of the five-membered hetero ring
354 ...Additional chalcogen bonded directly to the hetero ring
355 ....The additional chalcogen is bonded directly to the ring nitrogen
356 ....The additional chalcogen is double bonded directly to the hetero ring
357 ....Having -C(=X)-, wherein X is chalcogen, bonded directly to the additional chalcogen
358 ....The additional chalcogen is sulfur which is bonded directly to chalcogen
359 .....The sulfur is double bonded directly to the chalcogen
360 ....Additional carbon bonded directly to the additional chalcogen
361 ...Halogen attached directly at the 4-position of the hetero ring by nonionic bonding
362 ...The 4-position of the hetero ring is unsubstituted or alkyl substituted only
363 ....Nitrogen bonded directly at the 3-position of the hetero ring
364 ...Nitrogen bonded directly at the 3-position of the hetero ring
450 ..The hetero ring contains at least eight members including nitrogen and carbon
451 ...Chalcogen double bonded directly to a ring carbon of the hetero ring which is adjacent to the ring nitrogen (e.g., laurolactam, etc.)
452 ....Heavy metal, aluminum, boron or silicon containing
453 ....Spiro
454 ....Chalcogen in the hetero ring
455 .....Polycyclo ring system which contains the hetero ring as one of the cyclos
456 ......Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)
457 ....A five-membered cyclo of the polycyclo ring system consists of four ring carbons and one ring oxygen (e.g., fused rifamycins, etc.)
458 ....Tetracyclo ring system which contains the hetero ring as one of the cyclos (e.g., rifamycin S, etc.)
459 ....Nitrogen, sulfur or halogen attached directly to the tetracyclo ring system by nonionic bonding

460 ....Plural nitrogens in the hetero ring
461 ....Polycyclo ring system which contains the hetero ring as one of the cyclos
462 .....Oxirane ring is one of the cyclos in the polycyclo ring system (e.g., maytansinol, etc.)
463 ....Nitrogen or additional chalcogen attached directly to the hetero ring by nonionic bonding
464 ....Utilizing oximes, oxime salts, hydroxylamines, hydroxylamine salts or nitrosating agents to form the hetero ring (i.e., formation of the lactam ring)
465 ...Heavy metal or aluminum containing
466 ...Spiro
467 ...The hetero ring contains chalcogen
468 ....Polycyclo ring system which contains the hetero ring as one of the cyclos
469 .....Plural nitrogens in the hetero ring
470 ...The hetero ring contains plural nitrogens
471 ....Polycyclo ring system which contains the hetero ring as one of the cyclos
472 .....Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc., toxiferin)
473 .....Bicyclo ring system which contains the hetero ring as one of the cyclos
474 ....The hetero ring contains at least three nitrogens
475 .....Nitro bonded directly to ring nitrogen of the hetero ring (e.g., HMX, etc.)
476 ...Polycyclo ring system which contains the hetero ring as one of the cyclos
477 ....Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)
478 .....Containing additional heterocyclic polycyclo ring system having plural ring nitrogens (e.g., vinblastine, vincristine, etc.)
479 ....Tricyclo ring system which contains the hetero ring as one of the cyclos
480 ...Additional hetero ring attached directly or indirectly to the hetero ring by nonionic bonding
481 ....The additional hetero ring is six-membered and contains nitrogen
482 ...Chalcogen or nitrogen attached directly to the hetero ring by nonionic bonding
483 ...Plural nitrogens attached indirectly to the hetero ring by acyclic nonionic bonding
484 ..The hetero ring contains seven members including nitrogen and carbon
485 ...Chalcogen double bonded directly to a ring carbon adjacent to the ring nitrogen (e.g., caprolactam, etc.)
486 ....Heavy metal or aluminum containing
487 ....Silicon or phosphorus attached directly or indirectly to the hetero ring by nonionic bonding
488 ....Chalcogen in the hetero ring
489 .....Plural nitrogens in the hetero ring
490 .....Bicyclo ring system having the hetero ring as one of the cyclos
491 ......The chalcogen and the nitrogen are in the 1,5-positions of the bicyclo ring system (e.g., 1,5-benzothiazepinone, etc.)
492 ....Plural nitrogens in the hetero ring
493 .....Tetracyclo ring system having the hetero ring as one of the cyclos
494 ......Nitrogen of the hetero ring is shared by an additional cyclo of the tetracyclo ring system

495 .....Tricyclo ring system having the hetero ring as one of the cyclos
496 ......Nitrogen of the hetero ring is shared by an additional cyclo of the tricyclo ring system
497 ....Additional hetero atom in the additional cyclo of the tricyclo ring system
498 ....The additional cyclo is five-membered consisting of nitrogen and carbon (e.g., imidazobenzodiazepinones, etc.)
499 ....The additional cyclo consists of three nitrogens and two carbons (e.g., triazolobenzodiazepinones, etc.)
500 .....Bicyclo ring system having the hetero ring as one of the cyclos
501 ......At least three nitrogens in the hetero ring
502 ......At least three hetero atoms in the bicyclo ring system
503 ....Chalcogen in the bicyclo ring system
504 ......The bicyclo ring system is 1,4-benzodiazepine (including hydrogenated)
505 ....The chalcogen double bonded directly to the hetero ring is sulfur
506 ....Additional chalcogen bonded directly to ring carbon of the hetero ring
507 ....The additional chalcogen is bonded directly at the 3-position of the bicyclo ring system
508 ....Nitrogen or -C(=X)-, wherein X is chalcogen, attached indirectly to the chalcogen by acyclic nonionic bonding
509 ....Acyclic nitrogen bonded directly to the hetero ring
510 ....Having -C(=X)-, wherein X is chalcogen, bonded directly to the hetero ring
511 ....Halogen bonded directly to the hetero ring
512 ....Chalcogen attached indirectly to nitrogen of the hetero ring by acyclic nonionic bonding
513 ....Sulfur, -C(=X)-, wherein X is chalcogen, or nitrogen, other than as nitro or nitroso, bonded directly to the carbocyclic ring of the bicyclo ring system
514 ....Nitrogen in the 1-position substituent of the bicyclo ring system
515 ....Preparation by cyclizing benzophenones or imine derivatives thereof
516 ....Preparation from a compound containing a different hetero ring
517 ......The bicyclo ring system is 1,5-benzodiazepine (including hydrogenated)
518 ....Additional chalcogen double bonded directly to ring carbon of the hetero ring
519 ....Polycyclo ring system which contains the hetero ring as one of the cyclos
520 .....Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)
521 .....Plural hetero atoms in the polycyclo ring system
522 .....Tricyclo ring system which contains the hetero ring as one of the cyclos
523 .....Bicyclo ring system which contains the hetero ring as one of the cyclos
524 ....Additional hetero ring containing
525 .....Plural seven-membered hetero rings
526 ....Additional chalcogen bonded directly to the hetero ring
527 ....Nitrogen bonded directly to the hetero ring
528 .....The nitrogen is bonded additionally only to hydrogen
529 ....Having -C(=X)-, wherein X is chalcogen, bonded directly to the hetero ring
530 ....Halogen bonded directly to the hetero ring

531 ....Chalcogen or nitrogen attached indirectly to the hetero ring by nonionic bonding
532 ....Preparing from a compound containing a hetero ring
533 .....The hetero ring is a lactam (i.e., -C(=X)-NH- is part of the ring, wherein X is chalcogen and substitution may be made for the hydrogen only)
534 ....Preparing from a compound containing a cycloaliphatic ring
535 .....The reactant is a cyclic oxime
536 ......Gas phase rearrangement
537 .....Acyclic -C(=X)X-, wherein the X's are the same or diverse chalcogens, attached directly to the cycloaliphatic ring by nonionic bonding
538 ....Cyclization to form the hetero ring
539 .....Reactant contains a cyano group
540 ....Purification or recovery
541 ...Heavy metal or boron containing
542 ...Phosphorus attached directly or indirectly to the hetero ring by nonionic bonding
543 ...Spiro
544 ...The hetero ring contains chalcogen
545 ....Plural nitrogens in the heterocyclic ring
546 ....Polycyclo ring system which contains the hetero ring as one of the cyclos
547 .....Tricyclo ring system which contains the hetero ring as one of the cyclos
548 ......At least three ring hetero atoms in the tricyclo ring system
549 ......Sulfur and nitrogen are bonded directly to each other in the hetero ring
550 ......The nitrogen of the hetero ring is bonded directly to both remaining rings of the tricyclo ring system (e.g., dibenzo(b,e)(1,4)thiazepine, etc.)
551 ......Nitrogen bonded directly to ring carbon of the hetero ring
552 .....Bicyclo ring system which contains the hetero ring as one of the cyclos
553 ...The hetero ring contains plural nitrogens (e.g., 1,3-diazepines, etc.)
554 ....The hetero ring contains at least three nitrogens
555 ....Polycyclo ring system which contains the hetero ring as one of the cyclos
556 .....Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)
557 .....Tricyclo ring system which contains the hetero ring as one of the cyclos
558 ......Nitrogen of the hetero ring is shared by an additional cyclo of the tricyclo ring system
559 ....The additional cyclo has at least six ring members
560 ....Chalcogen in the tricyclo ring system
561 ....The additional cyclo consists of one nitrogen and four carbons (e.g., diazepinoindoles, etc.)
562 ....The additional cyclo consists of two nitrogens and three carbons (e.g., imidazobenzodiazepines, etc.)
563 ....s-Triazolo(4,3-a)(1,4)-benzodi-azepines (including hydrogenated)
564 ....Chalcogen, nitrogen, cyano or halogen bonded directly to ring carbon of the triazolo ring
565 ....Nitrogen attached indirectly to ring carbon of the triazolo ring by acyclic nonionic bonding
566 ....The unshared ring carbon of the triazolo ring is unsubstituted or alkyl substituted only
567 .....Bicyclo ring system which contains the hetero ring as one of the cyclos

568 ......At least three ring hetero atoms in the bicyclo ring system
569 ......1,4-benzodiazepines (including hydrogenated)
570 ....Chalcogen bonded directly to ring carbon of the hetero ring
571 ....Nitrogen bonded directly to ring carbon of the hetero ring
572 ....Chalcogen or nitrogen attached indirectly to ring carbon of the hetero ring by acyclic nonionic bonding
573 ....Chalcogen or nitrogen attached indirectly to ring carbon of the hetero ring by acyclic nonionic bonding
574 ....Formation of the 1,4-benzodiazepine ring system
575 ....The nitrogens are in the 1,4-positions of the hetero ring
576 ...Polycyclo ring system which contains the hetero ring as one of the cyclos
577 ....Plural nitrogens in the polycyclo ring system
578 .....Three or more hetero atoms in the polycyclo ring system
579 .....Nitrogen of the hetero ring is shared by an additional cyclo of the polycyclo ring system
580 .....The seven-membered hetero ring shares ring members with one other cyclo only
581 ....Two of the cyclos share at least three ring members or a ring carbon is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)
582 .....Bicyclo ring system which contains the hetero ring as one of the cyclos (e.g., 3-azabicyclo-(3.2.2)nonanes, etc.)
583 ......Having -C(=X)-, wherein X is chalcogen, bonded directly to ring nitrogen of the bicyclo ring system
584 ......Chalcogen or nitrogen attached directly to ring nitrogen of the bicyclo ring system by nonionic bonding
585 ......Chalcogen or nitrogen attached indirectly to ring nitrogen of the bicyclo ring system by acyclic nonionic bonding
586 ....Tricyclo ring system which contains the hetero ring as one of the cyclos
587 .....The hetero ring shares ring members with each of two benzene rings in the tricyclo ring system (e.g., morphanthridines, etc.)
588 ......The nitrogen of the hetero ring is bonded directly to each of the two benzene rings (e.g., iminodibenzyl, etc.)
589 ....Having -C(=X)-, wherein X is chalcogen, bonded directly to ring nitrogen of the tricyclo ring system
590 ....Nitrogen attached directly or indirectly to ring carbon of the hetero ring by acyclic nonionic bonding
591 ....Chalcogen attached directly or indirectly to the hetero ring by acyclic nonionic bonding
592 ....Nitrogen attached indirectly to ring nitrogen of the hetero ring by acyclic nonionic bonding
593 ....Bicyclo ring system which contains the hetero ring as one of the cyclos
594 .....3-Benzazepines (including hydrogenated)
595 ......Benzene ring bonded directly to ring carbon of the hetero ring
596 ...Additional hetero ring attached directly or indirectly to the hetero ring by nonionic bonding
597 ....The additional hetero ring is six-membered and contains nitrogen
598 .....Plural hetero atoms in the additional hetero ring
599 ......Polycyclo ring system having the additional hetero ring as one of the cyclos
600 ....The additional hetero ring is 1,3-diazine (including hydrogenated)

601 .....The additional hetero ring is 1,3-diazine (including hydrogenated)
602 ....The additional hetero ring is five-membered and contains nitrogen
603 .....Plural hetero atoms in the additional hetero ring
604 ...Chalcogen attached directly to the hetero ring by nonionic bonding
605 ...Nitrogen attached directly to the hetero ring by nonionic bonding
606 ....Chalcogen, additional nitrogen, or -C(=X)-, wherein X is chalcogen, attached directly to the nitrogen by nonionic bonding
607 ...Having -C(=X)-, wherein X is chalcogen, bonded directly to nitrogen of the hetero ring
608 ....Chalcogen bonded directly to the -C(=X)- group
609 ...Chalcogen or nitrogen attached indirectly to the hetero ring by acyclic nonionic bonding
610 ....The chalcogen or nitrogen is multiple bonded to a carbon (e.g., cyano or carbonyl groups, etc.)
611 ...Benzene ring bonded directly to the hetero ring
612 ...The hetero ring is unsubstituted or alkyl substituted only

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